IN THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Amendments to the Claims:

The following claims will replace all prior versions of the claims in this application (in the unlikely event that no claims follow herein, the previously pending claims will remain):

1.   (Currently Amended) A buffer allocation method supporting a maintenance policy in a shared disk-based multi-~~DBMS~~ Database Management System, the method comprising the steps of:

(a) calculating a required buffer locking mode based on a scheme mode to buffer lock mode matrix (SMTBM) shown below when a block identifier, an access mode (read, write) and a consistency maintenance policy (detection, avoidance) are selected and a buffer manager is requested to allocate a block on a disk to access actual data; and

(b) requesting a global locking manager to lock a buffer in the calculated buffer locking mode in case an obtained buffer locking mode is less than the calculated buffer locking mode or a version of a loaded block is lower than a required locking mode when the detection-based consistency maintenance scheme is selected, and approving buffer allocation otherwise,

wherein a detection-based consistency maintenance scheme and an avoidance-based consistency maintenance scheme are integrated in a single procedure to interwork with each other~~,~~ ;

wherein, if using the detection-based consistency maintenance scheme and access mode is Read access, the required buffer locking mode is Weak Shared;

wherein, if using the detection-based consistency maintenance scheme and the access mode is Write access, the required buffer locking mode is Weak Exclusive;

wherein, if using the avoidance-based consistency maintenance scheme and the access mode is Read access, the required buffer locking mode is Shared; and

wherein, if using the avoidance-based consistency maintenance scheme and the access mode is Write access, the required buffer locking mode is Exclusive.

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	Access	
Policy	Read	Write
Detection	WS	WX
Avoidance	S	X

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2.   (Currently Amended) The method as claimed in claim 1, wherein the step (b) includes the ~~step~~ steps of:

(b-1) when succeeding to receive a block in a state that the buffer is requested to lock, approving to allocate the buffer; and

(b-2) when failing to receive a block, reading the block from a disk to approve to allocate the buffer.

3.   (Currently Amended) A method of processing a global locking request in a ~~DBMS~~ Database Management System operated in a shared disk-based multi-system, the method comprising the steps of:

(a) obtaining a locking by an update authority (WX, X) in a system that has obtained a requested locking, allocating a corresponding block to a system that cached the corresponding block, and requesting to update a lock authority;

(b) determining whether the system is not compatible to a requested ~~lock~~ locking according to a buffer lock compatibility matrix (BLCM) ~~shown below~~ in the system that has obtained the requested lock in a read mode (WS, S), the step (b) further comprising:

(b1) wherein, if buffer locking belonging currently is NL (no luck), ownership authority of the system does not need to update;

(b2) wherein, if buffer locking belonging currently is WS (weak shared) and the requested locking is WS, S (shared) or WX (weak exclusive), the ownership authority of the system does not need to update;

(b3) wherein, if buffer locking belonging currently is X (exclusive), the ownership authority need to update;

(b4) wherein, if buffer locking belonging currently is S and the requested locking is WS or S, the ownership authority of the system does not need to update;

(b5) wherein, if buffer locking belonging currently is S and the requested locking is WX or X, the ownership authority of the system need to update;

(b6) wherein, if buffer locking belonging currently is WX and the requested locking is WS, the ownership authority of the system does not need to update;

(b7) wherein, if buffer locking belonging currently is WX and the requested locking is S, WX or X, the ownership authority of the system need to update;

(b8) wherein, if buffer locking belonging currently is X , the ownership authority of the system need to update; and

(c) instructing a system to update the lock authority if the system is determined not to be compatible.

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Convention	Request			
	WS	S	WX	X
NL	T	T	T	T
WS	T	T	T	F
S	T	T	F	F
WX	T	F	F	F
X	F	F	F	F

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4. (Currently Amended) A method of a global locking manager for processing a locking authority update request and a block allocation request in a ~~DBMS~~ Database Management System operated in a shared disk-based multi-system, the method comprising the steps of:

(a) when a current system has obtained a locking by an update authority (WX, X) and a current block is updated, writing a log forcedly about the current block based on write ahead logging (WAL) and writing a corresponding block on a disk or allocating the corresponding block through a transfer path;

(b) updating a currently owned buffer locking mode to satisfy a buffer locking mode requested by a remote system using a buffer lock revocation matrix (BLRM) ~~shown below;~~ ,wherein the step (b) further includes:

(b1) wherein, if the currently owned buffer locking mode is WS (weak shared) and the buffer locking mode requested is WS, S (shared) or WX (weak exclusive), a buffer locking mode to be owned is WS;

(b2) wherein, if the currently owned buffer locking mode is WS (weak shared) and the buffer locking mode requested is X (exclusive), a buffer locking mode to be owned is NL (no lock);

(b3) wherein, if the currently owned buffer locking mode is S and the buffer locking mode requested is WS or S, the buffer locking mode to be owned is S;

(b4) wherein, if the currently owned buffer locking mode is S and the buffer locking mode requested is WX, the buffer locking mode to be owned is WS;

(b5) wherein, if the currently owned buffer locking mode is S and the buffer locking mode requested is X, the buffer locking mode to be owned is NL;

(b6) wherein, if the currently owned buffer locking mode is WX or X and the buffer locking mode requested is WS, the buffer locking mode to be owned is WX;

(b7) wherein, if the currently owned buffer locking mode is WX or X and the buffer locking mode requested is S, the buffer locking mode to be owned is S;

(b8) wherein, if the currently owned buffer locking mode is WX or X and the buffer locking mode requested is WX, the buffer locking mode to be owned is WS;

(b9) wherein, if the currently owned buffer locking mode is WX or X and the buffer locking mode requested is X, the buffer locking mode to be owned is NL;and

(c) removing a corresponding block completely when returning a buffer locking as a result of the step (b), and completing to update an ownership otherwise.

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Convention	Request			
	WS	S	WX	X
WS	WS	WS	WS	NL
S	S	S	WS	NL
WX	WX	S	WS	NL
X	WX	S	WS	NL

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